

REMARKS

This Reply is submitted in response to a final Office Action mailed January 17, 2008. Claims 1 to 14 are pending in the present application. Claims 10 to 14 are withdrawn from consideration. No claims have been amended. No claims have been added. In view of the following remarks, reconsideration by the Examiner and allowance of the application are respectfully requested.

Discussion of §102(b) Rejections of Claims 1-9

In Section 1 of the Action, Claims 1-9 were rejected under § 102(b) as being anticipated by U.S. Patent No, 5,383,993 to Chatterjee *et al.* (“Chatterjee”). The applicants traverse respectfully this rejection.

Claim 1 is novel over Chatterjee, because Claim 1 recites a doping of a glass component. Chatterjee does not disclose a doping of a glass component. Thus Chatterjee does not anticipate Claim 1.

To anticipate a claim, the reference must teach every element of the claim. M.P.E.P. § 2131. Chatterjee does not teach the element of a glass component. Thus, Chatterjee does not anticipate Claim 1, or claims dependent thereon, and is not a valid § 102 reference.

Applicants agree with Examiner’s assertion in section titled “Response to Arguments”, specifically second and third paragraphs, that a glass component is being used to dope a ceramic oxide. Applicants also agree with Examiner’s assertion that ceramic oxide is being doped, and not glass component. The dopant is glass.

The phrase “glass component” is defined in the description, specifically page 6, third paragraph (corresponding to paragraph [0029] in U.S. Patent Application Publication No. 2005/0104264): “[t]he glass refers to a composite of various oxides based on SiO_2 .” The term “glass” is further characterized as having smaller thermal expansion coefficient than oxide ceramics, lower melting points than oxide ceramics, etc. All such characterizations are consistent with the general understanding of the term as an amorphous substance.

The characterization of the dopant in the claimed invention as glass is material to the definition of the invention. In the present application MgO is used as a component in glass -- specifically “the glass preferably consists of MgO, Al_2O_3 , and SiO_2 as principal components.” (page 6, third paragraph). In this case the glass refers to a mixture MgO, Al_2O_3 and SiO_2 as principal components. Although it is generally recognized that both pure MgO and pure Al_2O_3 act as crystalline solids, when combined together with SiO_2 , the mixture of MgO, Al_2O_3 and SiO_2 act as glass. Such glass, as stated above, has a lower melting point, smaller thermal coefficient, etc.

On the other hand, Chatterjee discloses various oxide dopants, such as MgO. It is known that MgO has a crystalline structure (cubic symmetry), and a melting point of about 2800 °C. MgO in this form is not glass. The fact that the dopant is glass, because the improved material characteristics of oxide ceramics depends in part on the ability of glass to permeate to the surface of the work piece and to fill between particles of the ceramic. The lower melting temperature that is exhibited by glass (such as that comprising MgO) makes it easier to permeate to the surface of the work piece and to fill between particles of the ceramic than for a crystalline oxide (such as MgO), which has a higher melting point.

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A withdrawal of the § 102(b) rejection is requested respectfully.

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Conclusion

In view of the above claim amendments and remarks, this application is now believed to be in condition for allowance. Reconsideration is, therefore, respectfully requested.

This First Reply to Final Office Action dated January 17, 2008 is being filed within two months of the Final Office Action. The Applicants request issuance of an Advisory Action. The Applicants also request a telephone interview if there are any remaining issues in this application to be resolved.

Respectfully submitted,

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